Zurich University
of Applied Sciences

School of
Management and Law

**Valid for** 2023.HS

| **Module Name: Manufacture** | |
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| Module Code | w.MA.XX.MANF.23HS |
| Module Description | The module builds on the general principles of operations management, i.e., the design and control of efficient material and resource flows for the generation/production of products and services. Operations management in a circular economy setting is even more challenging due to the design, planning, and implementation of the circularity of the material flows. Additionally, the production layout and manufacturing technologies require companies to be more flexible due to lower batch sizes and increased product variety. In case-based settings, the module addresses the complete production cycle from (raw) materials, efficient and timely production, to disassembly, refurbishment, re-use, and re-generation, including quality assurance, traceability issues, and viable cost structures. The module includes international issues of operations management for both business-to-business (B2B) and business-to-consumer (B2C) products and services, including facilities and production planning, operational aspects of inventory planning, use of Big Data, financial implications, and legal and organizational issues. Students will have an opportunity to engage with traditional production companies as well as start-ups of new circular economy products and services. |
| Program and Specialization | Circular Economy Management |
| Legal Framework | Academic Regulations MSc in Circular Economy Management dated 02.06.2022, Appendix to the Academic Regulations for the degree program in Circular Economy Management, first adopted on 23.09.2022 |
| Module Category | **Module Type:**<br>Compulsory |
| ECTS | 3 |
| Organizational Unit | W Center for Corporate Responsibility CCR |
| Module Coordinator | Jörg Agarico (agrc) |
| Deputy Module Coordinator | Matthias Ehrat (ehra) |
| Prerequisite Knowledge | Students need a basic knowledge and understanding of operations management, production cycles, and operation costs. |
| Contribution to Program Learning Goals (Affected by Module) | § Professional Competence<br>§ Methodological Competence<br>§ Social Competence<br>§ Self-Competence |
| Contribution to Program Learning Objectives | Professional Competence<br>§ Knowing and Understanding Content of Theoretical and Practical Relevance<br>§ Apply, Analyze, and Synthesize Content of Theoretical and Practical Relevance<br>§ Evaluate Content of Theoretical and Practical Relevance<br>Methodological Competence<br>§ Problem-Solving & Critical Thinking<br>§ Scientific Methodology<br>§ Work Methods, Techniques, and Procedures<br>§ Information Literacy<br>§ Creativity & Innovation<br>Social Competence<br>§ Written Communication<br>§ Oral Communication<br>§ Teamwork & Conflict Management<br>§ Intercultural Insight & Ability to Change Perspective<br>Self-Competence<br>§ Self-Management & Self-Reflection<br>§ Ethical & Social Responsibility<br>§ Learning & Change |
| Module Learning Objectives | Students...<br>§ will understand the complexities and drivers of moving from a linear to a circular production and operations management with more circular material flows.<br>§ can analyze and implement case-based production and operation models in a new circular setting, including cost and revenue implications.<br>§ are able to link production technologies to the requirements of circular operations management models. |

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| Module Content | § Principles of operations management.<br>§ Links between circular economy guidelines, design, and production/operations models.<br>§ Operations management incorporating the R10 framework (repair, recycle, …)<br>§ Environmental and material impact.<br>§ Financial aspects – cost and revenue.<br>§ Case-study-based analysis and evaluation. | | |
| Links to other modules | The content of this module is linked to the following modules:<br>w.MA.XX.BMCE.23HS | | |
| | w.MA.XX.MES.23HS | | |
| | w.MA.XX.SCVC.23HS | | |
| | w.MA.XX.SSEC.23HS | | |
| Methods of Instruction | § Lecture<br>§ Case Studies | **Social Settings Used:**<br>Group Work | |
| Digital Resources | § Reader<br>§ Teaching Materials | | |

| Type of Instruction | **Classroom Instruction** | **Guided Self-Study** | **Autonomous Self-Study** |
|---|---|---|---|
| Lecture | 28 h | 8 h | |
| Excercise | - | - | |
| Project Work | - | - | |
| Seminar | - | - | |
| **Total** | **28 h** | **8 h** | **54 h** |

Performance Assessment

| **End-of-module exam** | **Form** | **Length (min.)** | **Weighting** |
|---|---|---|---|
| Written exam | Open book | 60 | 100,00 % |
| **Permitted Resources** | Free choice of calculator | With dictionary | |

| **Others** | **Assessment** | **Length (min.)** | **Weighting** |
|---|---|---|---|
| Talk/oral presentation | Pass/Fail | 15 | - |

Students are not allowed to revise and resubmit performance assessment tasks.

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| Classroom Attendance Requirement | Mandatory Attendance: Other<br><br>Students are required to participate in the excursions. |
| Language of Instruction/Examination | English |
| Compulsory Reading | - |
| Recommended Reading | Recommendations will be given in class. |
| Comments | - |